KINNEY ENGINEERING, LLC

MEMORANDUM

TO:	Jan Keiser, P.E. (COH Public Works Director)
FROM:	Tae Voight, P.E., Randy Kinney, P.E. PTOE, Leon Galbraith, P.E.
DATE:	December 5, 2022
SUBJECT:	Ohlson Traffic Calming Recommendations/ COH #22-02

A resurfacing project to repair Ohlson Lane and Bunnell Avenue is being developed to extend the life of the pavement and drainage facilities along this local road in Homer, Alaska. A recent meeting with locals indicated a need for additional traffic calming devices in the area of the project known as Old Town district.

Traffic calming measures generally address excessive traffic volumes and, or speeds. Excessive traffic volumes can result when vehicles that have no origin or destination point in the vicinity are using the street as a by-pass mobility route to avoid congestion on a designated mobility route. This is not the likely case or need on Ohlson Lane and Bunnell Avenue because there is no advantage to using the Old Town street network to save travel time over the mobility route, Sterling Highway. As such, the primary benefit of traffic calming would be to deter speeding in the area. A secondary benefit of speed reduction would be safety, particularly pedestrian safety.

Existing Conditions

The City of Homer has provided Kinney Engineering (KE) with drawings from Nelson Engineering that show initial design recommendations for the pavement restoration project on Ohlson Lane and Bunnell Avenue between the Sterling Highway and Main Street. Ohlson Lane currently does not have any sidewalks but there is a short paved bike lane shoulder on Bunnell Avenue to the east of Main Street (outside of the project limits). There is one speed hump on Bunnell and the posted speed limit in the area is 25 mph.

Ohlson Lane and Bunnell Avenue are both classified as Minor Collectors (Rural) on the Alaska Traffic Data website. Given the collector street functional classification, it would be reasonable to expect a wide range of trucks from SU30s to WB-50s. The estimated 2021 Average Annual Daily Traffic (AADT) for Ohlson Lane and Bunnell Avenue is 1,100 and 1,030.

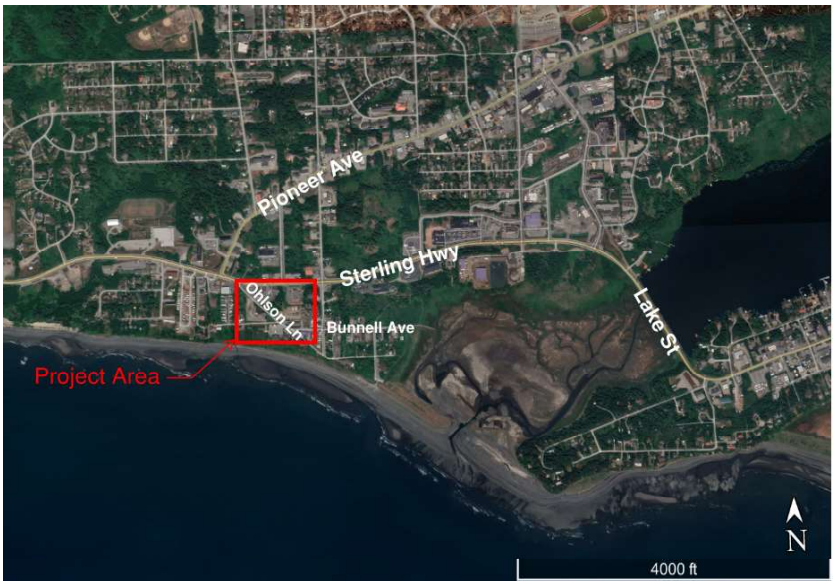


Figure 1- Homer Vicinity Map

Figure 2- Ohlson Lane

Figure 3- Ohlson Lane at Bunnell Avenue

Figure 4- Attached Pathway on Bunnell Avenue

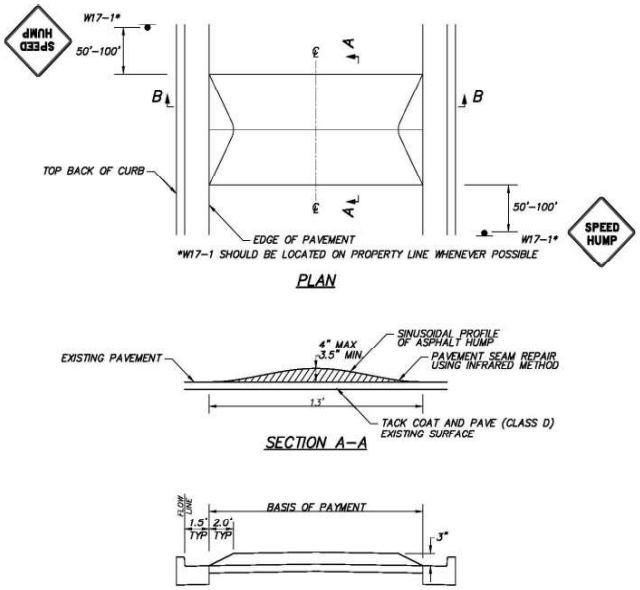
Figure 5- Speed Hump and Signage on Bunnell Avenue

Traffic Calming Devices Focused on Speed Reduction

Speed Hump

Speed humps are raised areas of pavement, in a parabolic shape, with a relative rise of 3 inches and are between 12 and 22 feet in length, and extending the width of travel way. Speed humps are intended to promote 85th percentile speeds between 25 and 35 mph when used in series and spaced between 250 feet and 500 feet apart. They are typically accompanied by associated signing and pavement markings. A speed hump diagram is shown in Figure 6.There are no speed humps on Ohlson Lane and one existing speed hump on Bunnell Avenue east of Main Street.

Effectiveness in Speed Reduction- A compilation of Institute of Transportation Engineers (ITE) and Federal Highway Administration (FHWA) studies indicate that speed humps are effective in speed reduction, with expected reductions of 20% to 25%. To be fully effective, speed humps must be used in series or with other traffic calming devices.



Source:https://www.muni.org/Departments/traffic/Documents/Policy_Manual_Final_03_10.pdf

Figure 6- Speed Hump Diagram

Other Advantages- Bicycle lanes are compatible with speed humps if speed humps do not encroach into the bicycle lane. Trucks such as SU30's to WB-50s can safely negotiate speed humps at low speed.

Disadvantages- Speed humps can be damaged by snow plows and graders, especially over time and may require additional effort and costs. Typically, signs and pavement markings identifying a hump location will also be installed and have to be maintained. Emergency response times are impacted by speed humps and tables, and emergency responder personnel have been injured while traversing speed humps. As such, the use and placement of speed humps should be coordinated with street maintenance, and emergency responders.

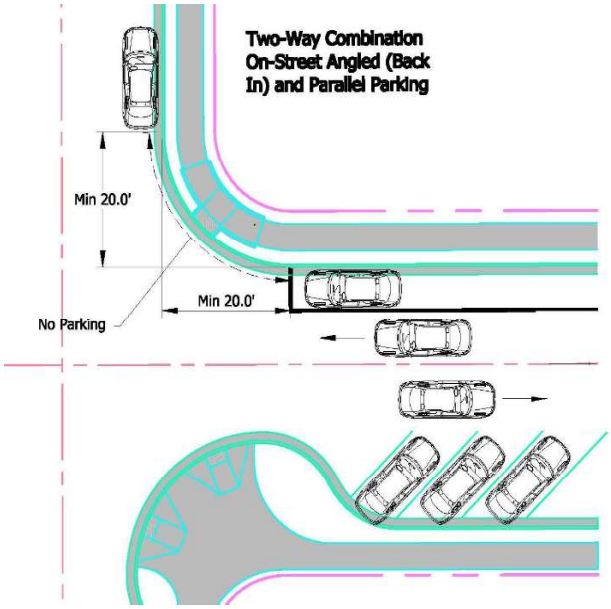
On Street Parking

Allocation of space to on street parking reduces street width and can be applied with other traffic calming measures. A schematic of on street parking strategies is shown in Figure 7.

Effectiveness in Speed Reduction- To maximize speed reduction, parallel parking is preferred to increase side friction to traffic flow per ITEs Fact Sheet on On-Street Parking, and as such, the existing configuration should change from angled to parallel parking.

Other Advantages- On Street parking can be combined with other traffic calming measures and provides convenient access to local businesses. First responders prefer this traffic calming measure over others per ITEs Fact Sheet for On-Street Parking.

Disadvantages-. Road user visibility and intersection sight distance may be reduced with on street parking. During snow plowing operations vehicle removal is required.



Source: . https://arlingtonva.s3.dualstack.us-east-1.amazonaws.com/wp-content/uploads/sites/21/2013/12/H-3.5-On-Street-Parking.pdf

Figure 7- On Street Parking Schematic

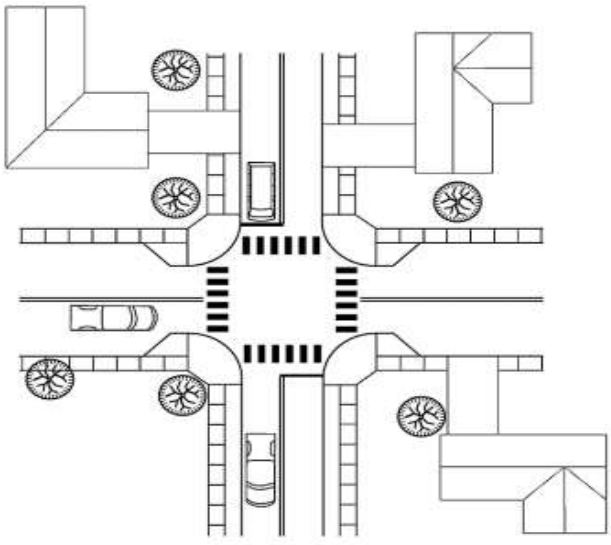
Bulb-Out

Bulb outs are a horizontal extension into the street that results in a narrower roadway section. They are beneficial when used in conjunction with other traffic calming measures. A bulb out schematic is shown in Figure 8.

Effectiveness in Speed Reduction- Studies indicate bulb-outs are not effective in reducing vehicle speeds.

Other Advantages- Effective when used in combination with crosswalks and on-street parking because it controls parking encroachment into the crosswalk area, increase pedestrian sight distance and vehicle visibility for pedestrian(s) staging to cross, and reduces pedestrian crossing distances.

Disadvantages- Turning radius must be taken into consideration in order to avoid turning vehicles crossing centerline.



Source:https://regulations.delaware.gov/register/august2012/proposed/DETCM.pdf

Figure 8- Bulb-Out Schematic

Supplemental Traffic Calming Measures

Sidewalks and crosswalks- Pedestrian facilities increase pedestrian compliance when placed appropriately and reduce conflicts with vehicles.

Landscaping- Increases vehicle and pedestrian visibility.

Education and enforcement- Traffic calming programs can be a non-physical measure, supplement, or precursor to physical measures.

Recommendations

The objectives of the project are to encourage speed compliance and responsible driver behavior, as well as increase pedestrian safety through traffic calming. For this project, speed humps, street width reductions, and bulb-outs are the proposed measures. The current design includes street width reductions by reconfiguring on-street parking on Bunnell Avenue. As shown in Figure 9 it is recommended to relocate the proposed crosswalks to the intersection of Ohlson Lane and Bunnell Avenue. Relocation of the crosswalk to the intersection promotes pedestrian compliance and visibility. It is also recommended to install an additional crosswalk and bulb out at the intersection of Bunnell Avenue and Main Street. The addition of two speed humps is recommended on Ohlson lane for speed reduction.

Supplemental traffic calming measures that could be beneficial to the area are landscaping, and education and enforcement measures.

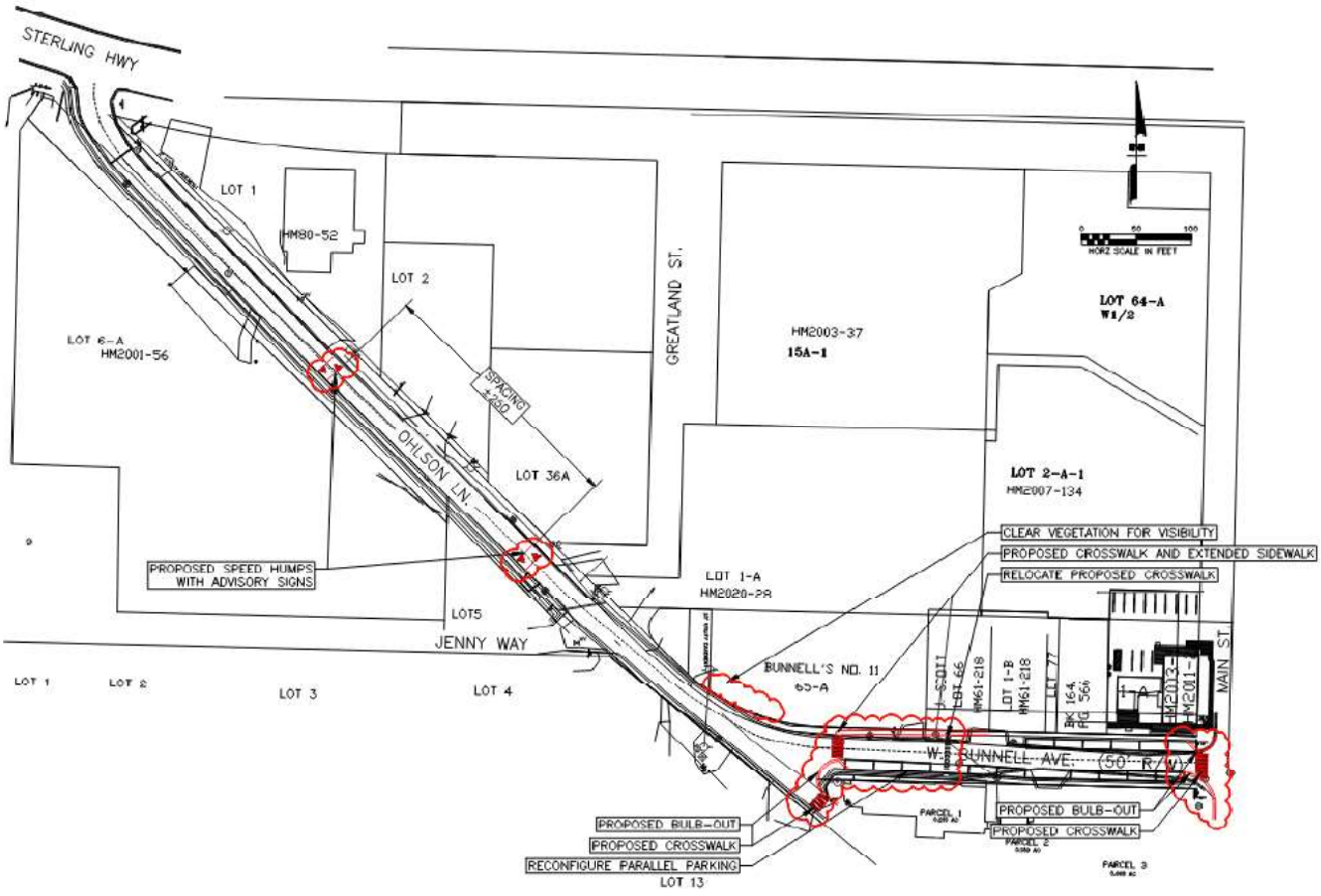


Figure 9- Proposed Traffic Calming Measures

References

(2005). *Traffic Calming Policy Manual*. Municipality of Anchorage. https://www.muni.org/Departments/traffic/Documents/Policy_Manual_Final_03_10.pdf

(2012). *Corner Extensions*. DelDOT Traffic Calming Manual. https://regulations.delaware.gov/register/august2012/proposed/DETCM.pdf

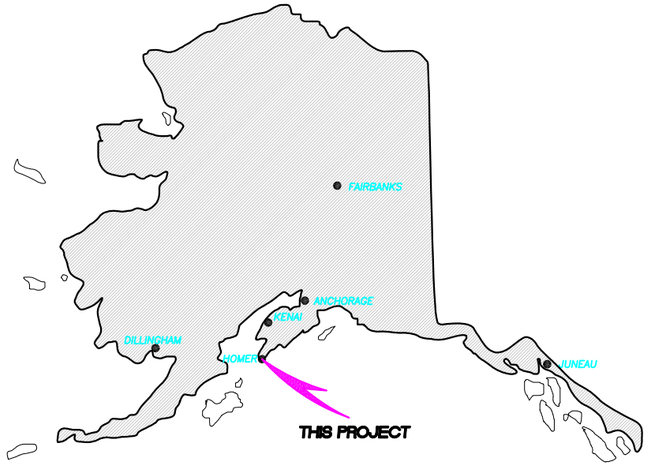
(n.d.). *Traffic Calming Measures*. ITE. https://www.ite.org/technical-resources/traffic-calming/traffic-calming-measures/

(n.d.). *Alaska Traffic Data*. Alaska Traffic Data. https://alaskatrafficdata.drakewell.com/publicmultinodemap.asp

(n.d.). *On Street Parking*. Arlington County. https://arlingtonva.s3.dualstack.us-east-1.amazonaws.com/wp-content/uploads/sites/21/2013/12/H-3.5-On-Street-Parking.pdf

CITY OF HOMER

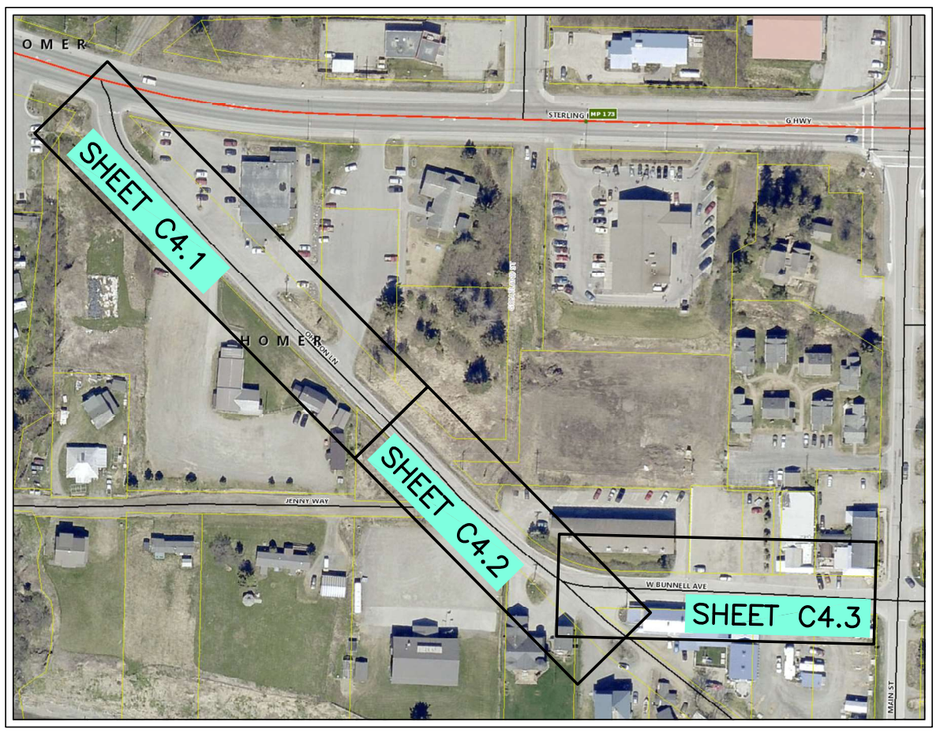
OHLSON LANE AND W. BUNNELL AVENUE ROAD IMPROVEMENTS



LOCATION MAP

NORTH

VICINITY MAP



DRAWING	SHEET
TITLE SHEET AND LOCATION MAP	C1.1
NOTES AND ABBREVIATIONS	C2.1
TYPICAL ROAD SECTIONS AND DETAILS	C3.1
TYPICAL ROAD SECTIONS AND DETAILS	C3.2
TYPICAL ROAD SECTIONS AND DETAILS	C3.3
PLAN AND PROFILE -OHLSON LANE STA 0+00 TO 6+00	C4.1
PLAN AND PROFILE - OHLSON LANE STA 6+00 TO 10+50	C4.2
PLAN AND PROFILE - BUNNELL AVE. STA 20+00 TO 24+50	C4.3

LEGEND

EXISTING (E)	PROPOSED (P)	
		ROAD CENTERLINE
		ROW CENTERLINE
100	100	CONTOUR LINES
		CUT/FILL DAYLIGHT
		EDGE OF ASPHALT PAVEMENT
		EDGE OF GRAVEL
		EDGE OF R.O.W.
		PROPERTY LINE
		EASEMENT
UGT		UTILITY – COMMUNICATION
OHP		UTILITY – ELECTRIC – OVERHEAD
GAS		UTILITY – GAS
W		UTILITY – WATER
SS		UTILITY – SANITARY SEWER
SD	SD	UTILITY – STORM DRAIN
C		COMMUNICATION PEDESTAL
W		MANHOLE – WATER
S		MANHOLE – SANITARY SEWER
D	D	MANHOLE – STORM DRAIN
WV		WATER VALVE
		FENCE
		CULVERT
		REBAR / IRON ROD
		TEST HOLE LOCATION

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CITY OF HOMER
OHLSON LANE AND W. BUNNELL AVENUE
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TITLE PAGE, LOCATION MAP, AND LEGEND

PROJECT NO. 2022037
DRAWN BY: GTP
CHECKED BY: MJD
DATE: 02/08/2023
SCALES: NOTED
HORIZ. NOTED
VERT. NOTED
SHEET: C1.1
1 OF 8

GENERAL NOTES

1.) THIS PROJECT INCLUDES THE CONSTRUCTION OF THE ST ANDREWS ROAD IMPROVEMENTS INCLUDING GRADING, LEVELING, AND ALL OTHER ITEMS SHOWN ON THE PLANS.

2.) LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. ACTUAL DEPTH, NUMBER AND LOCATION IS UNKNOWN. BURIED UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS MAY BE PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION, IDENTIFYING, AND WORKING AROUND ALL UTILITIES WITHIN THE PROJECT LIMITS AT NO ADDITIONAL COST TO THE OWNER. CALL FOR LOCATES PRIOR TO EXCAVATION.

3.) THE FOLLOWING ALASKA STATUTES APPLY TO WORK NEAR OVERHEAD ELECTRIC LINES:

AS 18.60.670 (1) PLACEMENT OF AN TYPE OF TOOL, EQUIPMENT, MACHINERY OR MATERIAL THAT IS CAPABLE OF LATERAL, VERTICAL OR SWINGING MOTION, WITHIN 10' OF ENERGIZED LINES IN NOT ALLOWED.

AS 18.60.670 (2) MINIMUM 10' CLEARANCE FROM BUILDINGS, APPARATUS, MACHINERY, MATERIALS, ETC.

AS 18.60.680 ANY WORK WITHIN MINIMUM DISTANCE STATED ABOVE SHALL REQUIRE CONTACT WITH HEA TO INSTALL TEMPORARY MECHANICAL BARRIERS, TEMPORARY DE-ENERGIZATION AND GROUNDING, OR TEMPORARY RAISING OF CONDUCTORS.

TYPICAL ABBREVIATIONS

ASS'Y	ASSEMBLY	EVCS	END VERTICALCURVE STATION	N	NORTH
APPROX	APPROXIMATE	EXIST	EXISTING	NFS	NON FROST SUSCEPTIBLE
BEG	BELOW EXISTING GRADE	EX	EXISTING	NTS	NOT TO SCALE
BOP	BOTTOM OF PIPE	F	FOUND	OC	ON CENTER
BVCE	BEGINNING VERTICAL CURVE ELEVATION	FG	FINISH GRADE	OH	OVERHEAD
		FT	FOOT, FEET	PC	POINT OF CURVATURE
BVCS	BEGINNING VERTICAL CURVE STATION	G	GAS	PED	PEDESTAL
		GD	GROUND	PI	POINT OF INTERSECTION
CIP	CAST IRON PIPE	GR	GRADE	PL	PROPERTY LINE
CL	CENTER LINE, CLASS	HDPE	HIGH DENSITY POLYETHYLENE	PP	POWER POLE
CONST	CONSTRUCT	HORIZ	HORIZONTAL	PVI	POINT OF VERTICAL INTERSECTION
COR	CORNER	HYD	HYDRANT	PVMT	PAVEMENT
DET	DETAIL	INT	INTERSECTION	R	RADIUS, RECORD
DIA	DIAMETER	INV	INVERT	RD	ROAD
DW	DRIVEWAY	L	LENGTH	ROW	RIGHT OF WAY
DWG	DRAWING	LF	LINEAR FEET	RP	RADIUS POINT
E	EAST, ELECTRIC LINE	LVC	LENGTH OF VERTICAL CURVE	RT	RIGHT
EA	EACH	MAX	MAXIMUM	S	SOUTH, SLOPE
EL,ELEV	ELEVATION	MB	MAIL BOX	SEC	SECTION
EOP	END OF PROJECT	MFR	MANUFACTURER	SCH	SCHEDULE
EP	EDGE OF PAVEMENT	MKR	MARKER POST	SD	STORM DRAIN
ESMT	EASEMENT	MIN	MINIMUM	SHLD	SHOULDER
EVCE	END VERTICAL CURVE ELEVATION	MON	MONUMENT	SHT	SHEET

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NOTES, ABBREVIATIONS, AND SCHEDULES

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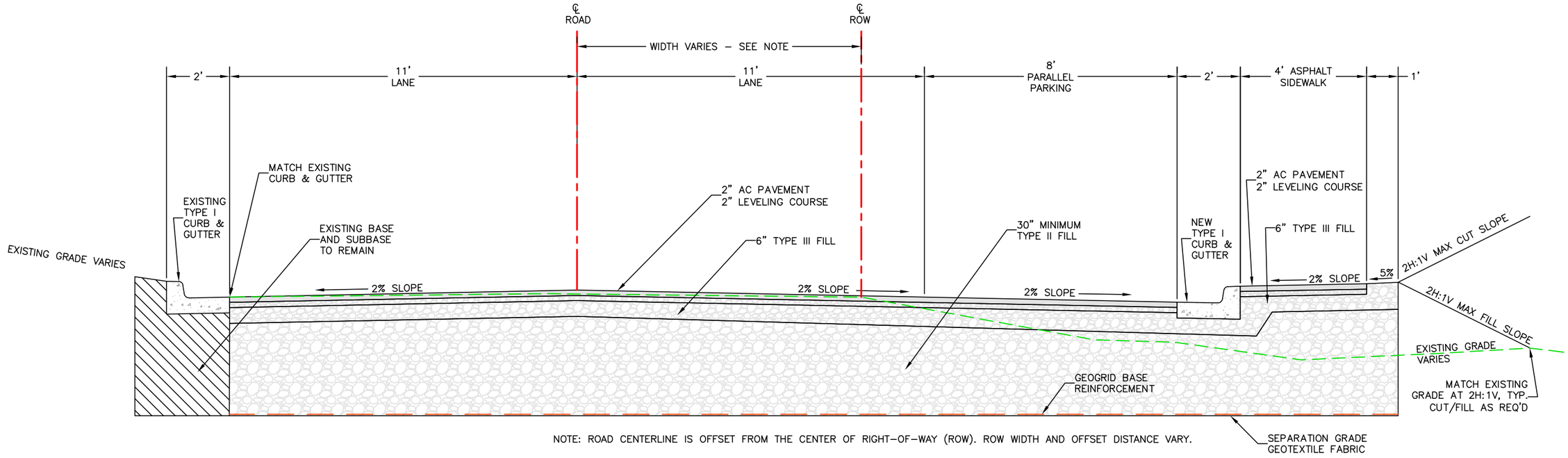
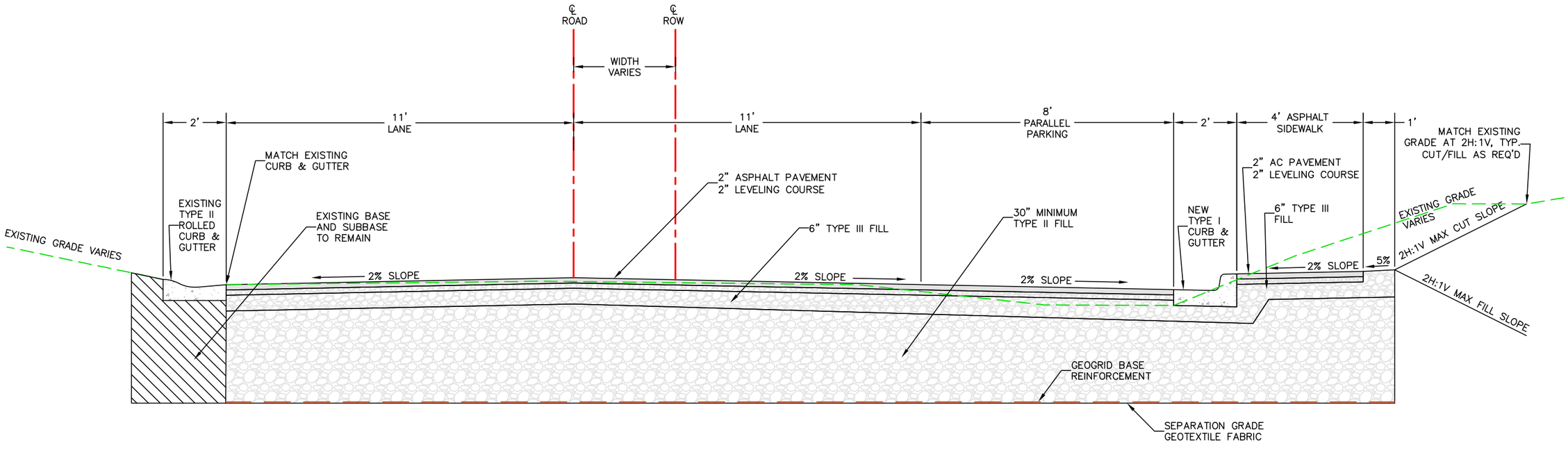
2 OF 8



NOTE: ROAD CENTERLINE IS OFFSET FROM THE CENTER OF RIGHT-OF-WAY (ROW). ROW WIDTH AND OFFSET DISTANCE VARY.

A C3.1 OHLSON LANE TYPICAL SECTION - STA 0+48 TO 1+42

GRAPHIC SCALE: NTS



B C3.1 OHLSON LANE TYPICAL SECTION - STA 1+42 TO 3+67

GRAPHIC SCALE: NTS

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TYPICAL ROAD SECTIONS AND DETAILS

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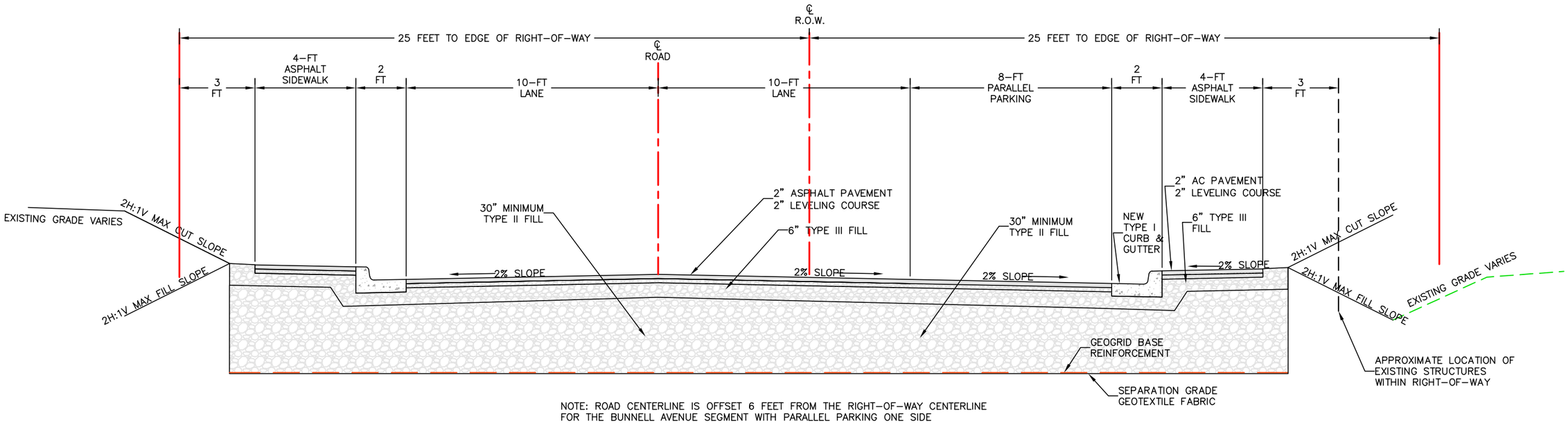

NOTE: ROAD CENTERLINE IS OFFSET 6 FEET FROM THE RIGHT-OF-WAY CENTERLINE FOR THE BUNNELL AVENUE SEGMENT WITH PARALLEL PARKING ONE SIDE

A C3.2 W. BUNNELL AVENUE TYPICAL SECTION - STA 21+37 TO 22+43

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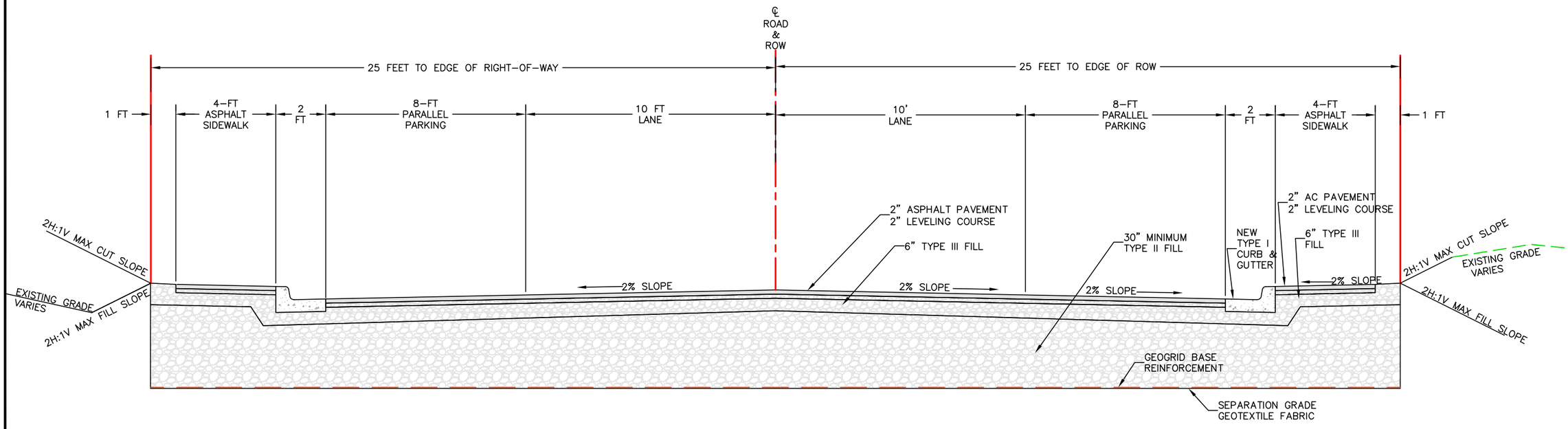

B C3.2 W. BUNNELL AVENUE TYPICAL SECTION - STA 22+43 TO 24+25

GRAPHIC SCALE: NTS

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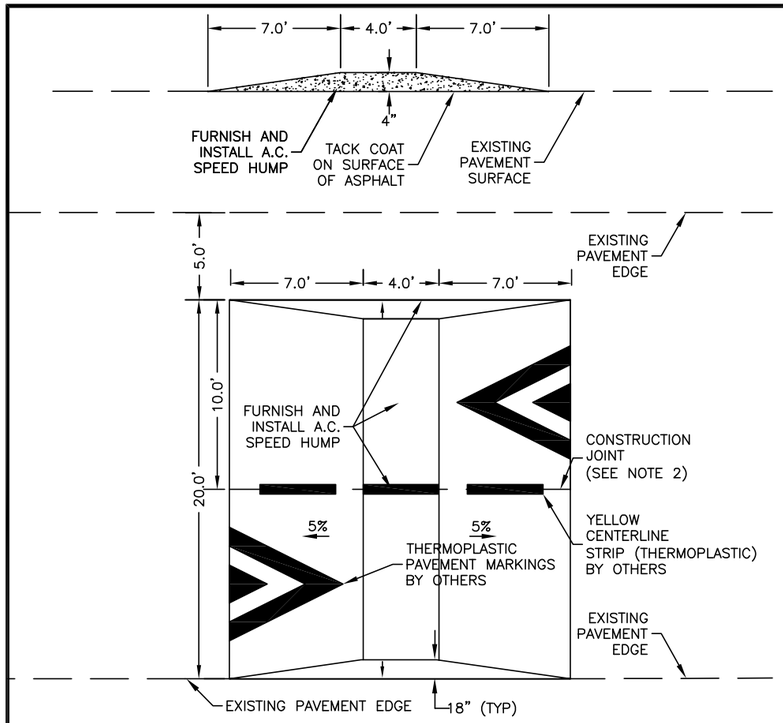
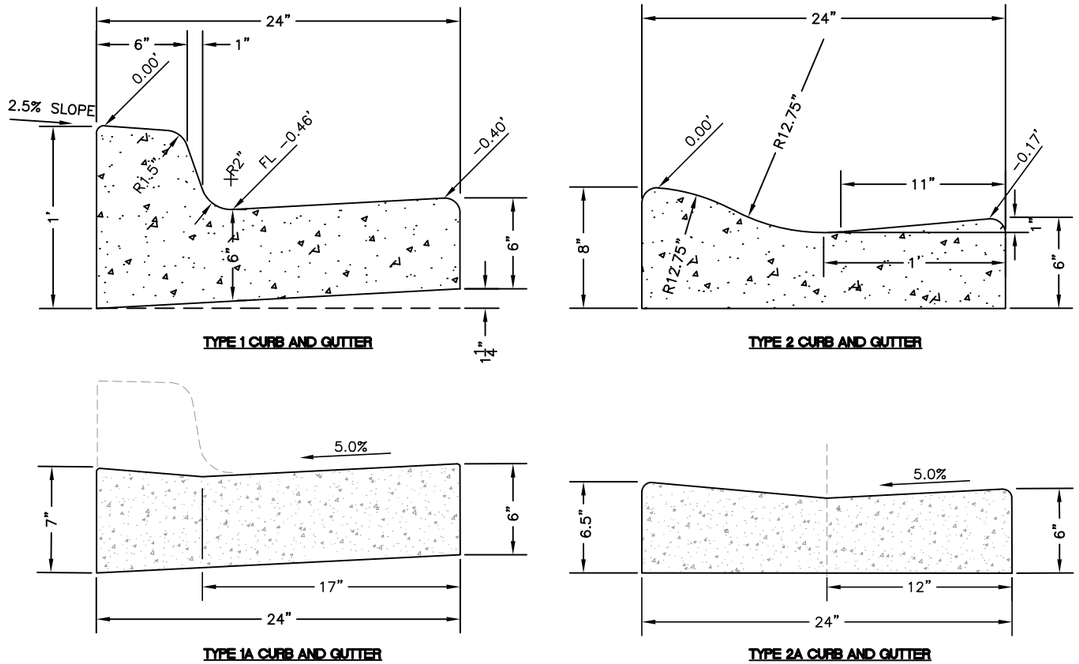


NOTES:
1) CONTRACTOR SHALL CONSTRUCT EACH HUMP IN TWO SECTIONS AND PROVIDE TRAFFIC CONTROL TO ONE LANE OF THROUGH TRAFFIC AT ALL TIMES.

A C3.3 TYPICAL SPEED HUMP

GRAPHIC SCALE: NTS



B C3.3 TYPICAL CONCRETE CURBS AND GUTTERS

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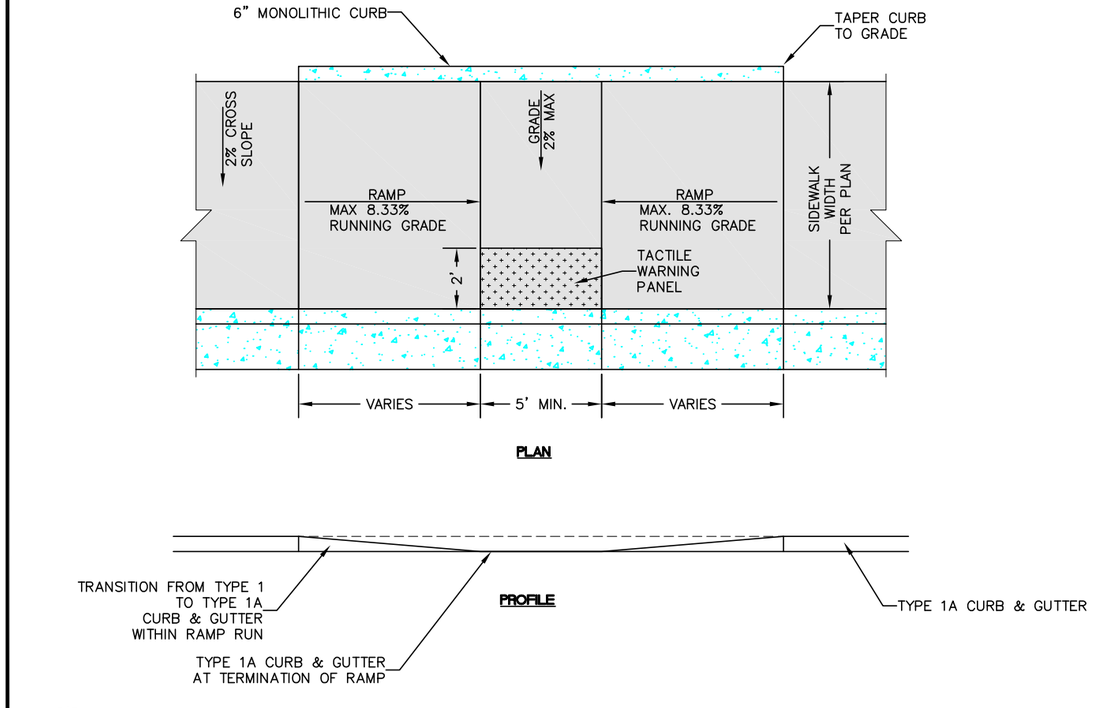

C C3.3 TYPICAL ADA PARALLEL SIDEWALK CURB RAMP

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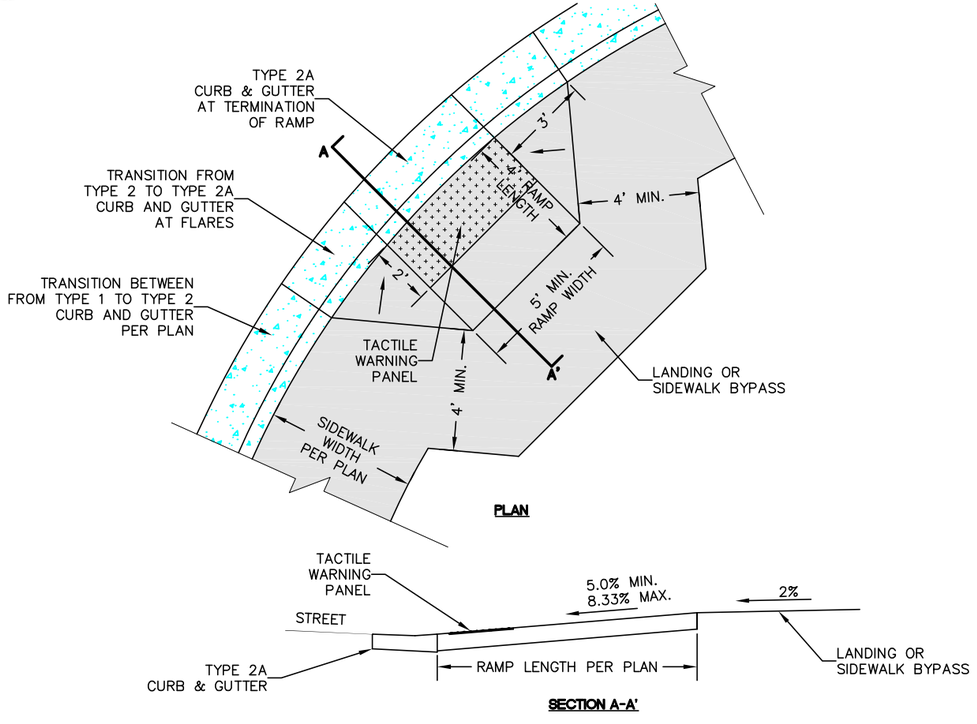

D C3.3 TYPICAL ADA PERPENDICULAR SIDEWALK CURB RAMP

GRAPHIC SCALE: NTS

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TYPICAL ROAD SECTIONS AND DETAILS

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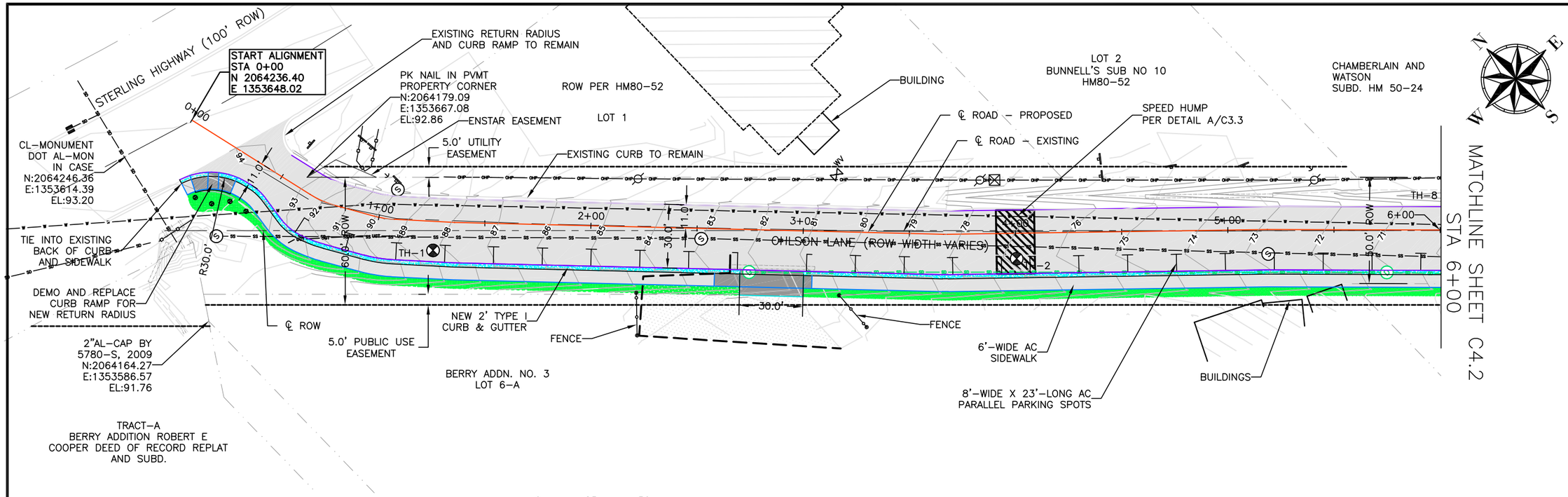
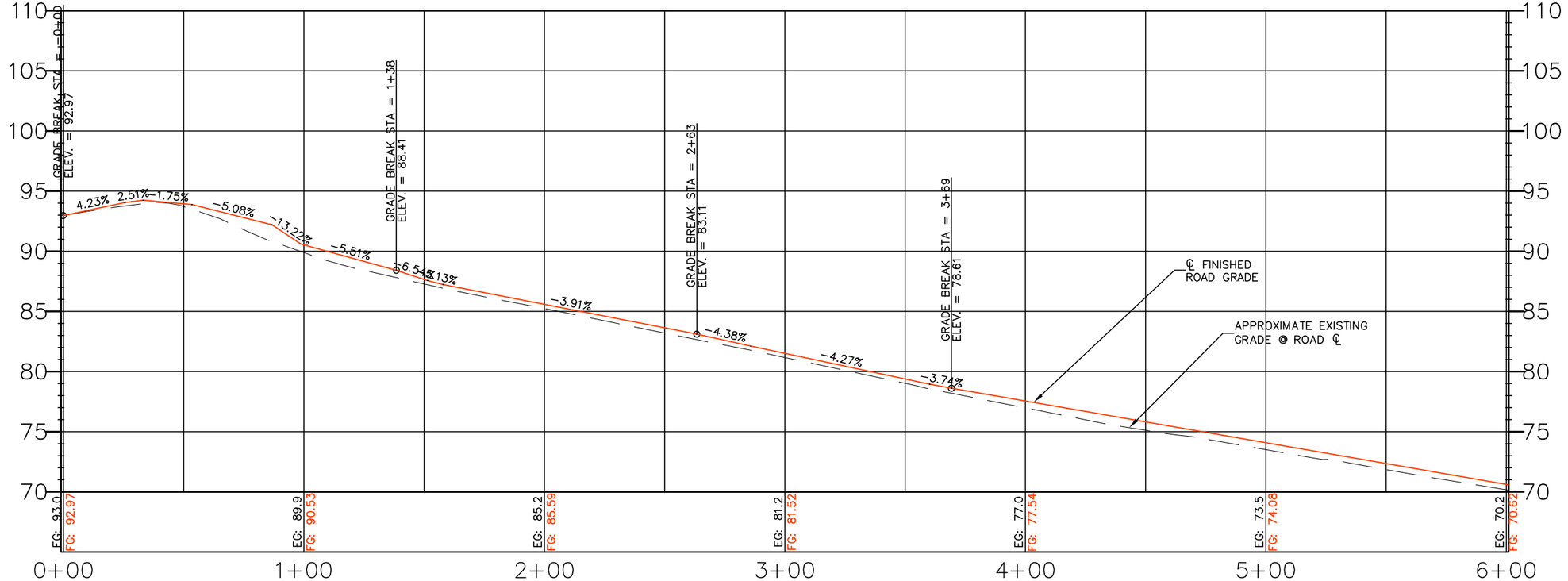


A C4.1 **OHLSON LANE PLAN - STA 0+00 TO 6+00**

0 25 50

GRAPHIC SCALE: 1"=25' (22X34), 1"=50' (11X17)



B C4.1 **OHLSON LANE PROFILE - STA 0+00 TO 6+00**

HORIZ. SCALE: 1"=25' (22X34), 1"=50' (11X17); VERT. SCALE: 1"=5' (22X34), 1"=10' (11X17)

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CITY OF HOMER
OHLSON LANE AND W. BUNNELL AVENUE
HOMER, ALASKA
PLAN AND PROFILE - OHLSON LANE

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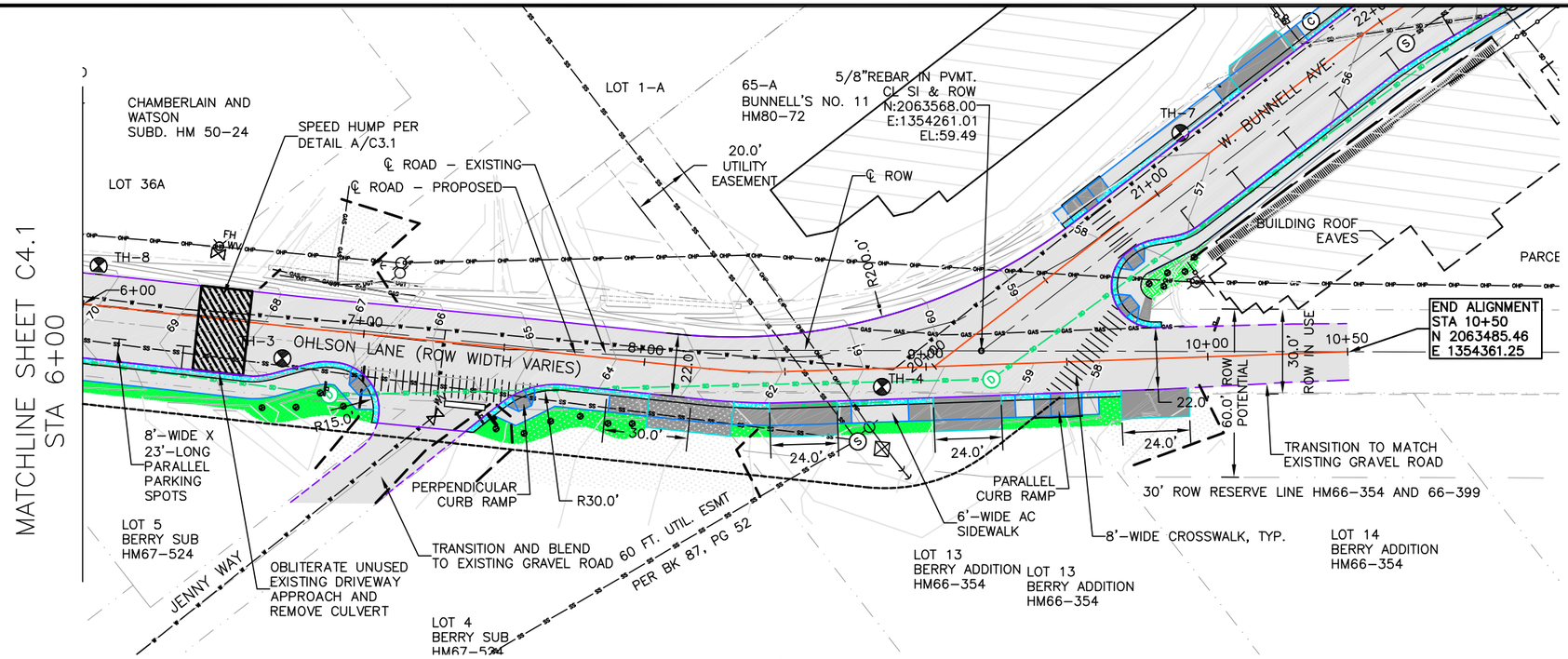

A / C4.2 **OHLSON LANE PLAN – STA 6+00 TO 10+50**

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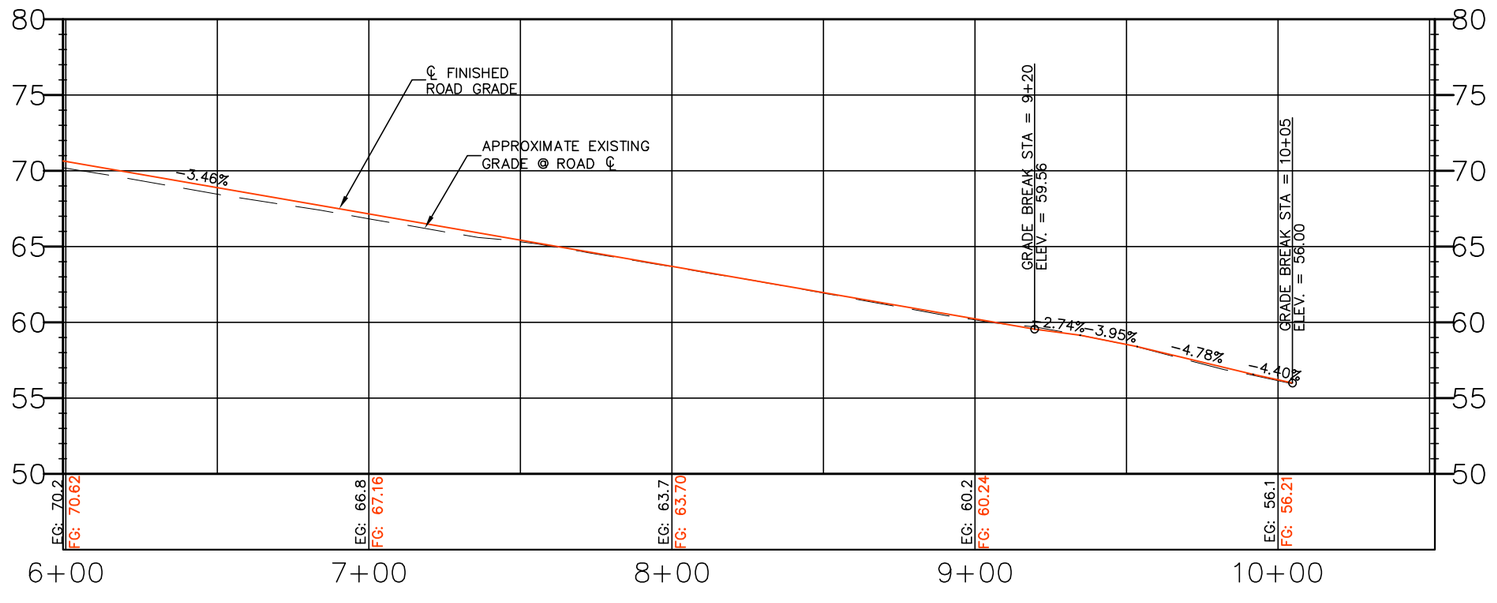

B / C4.2 **OHLSON LANE PROFILE – STA 6+00 TO 10+50**

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PLAN AND PROFILE – OHLSON LANE

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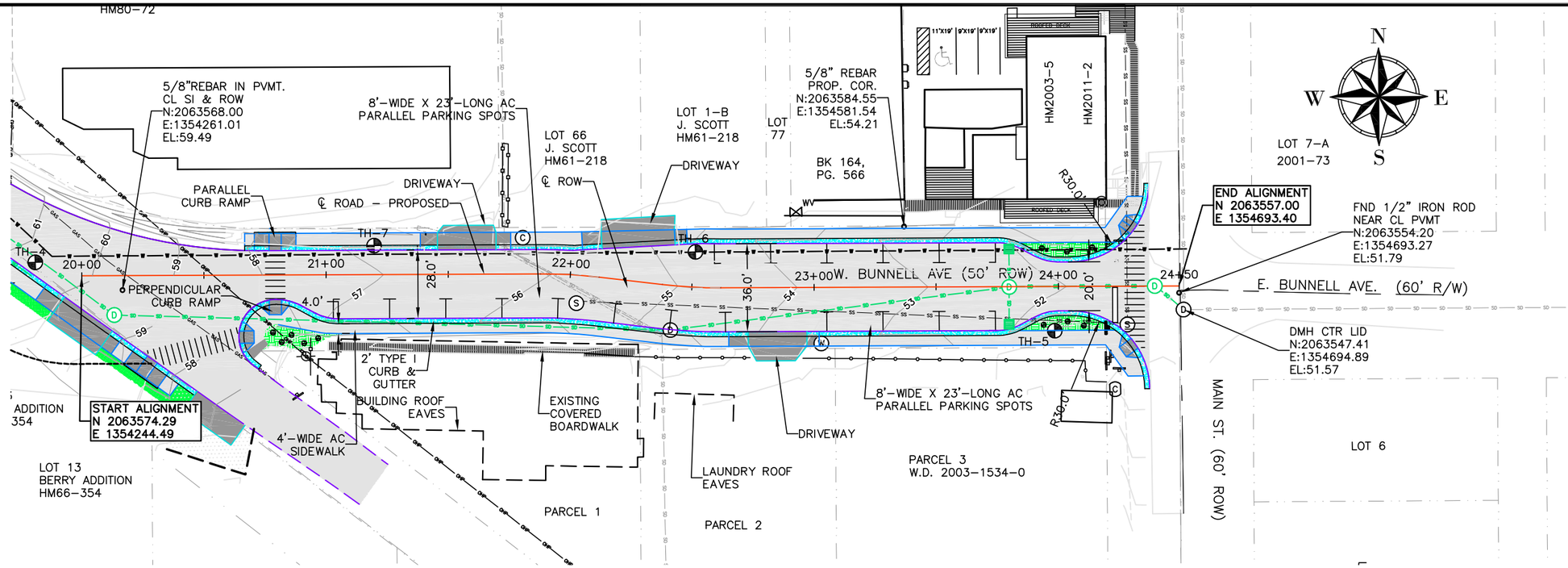
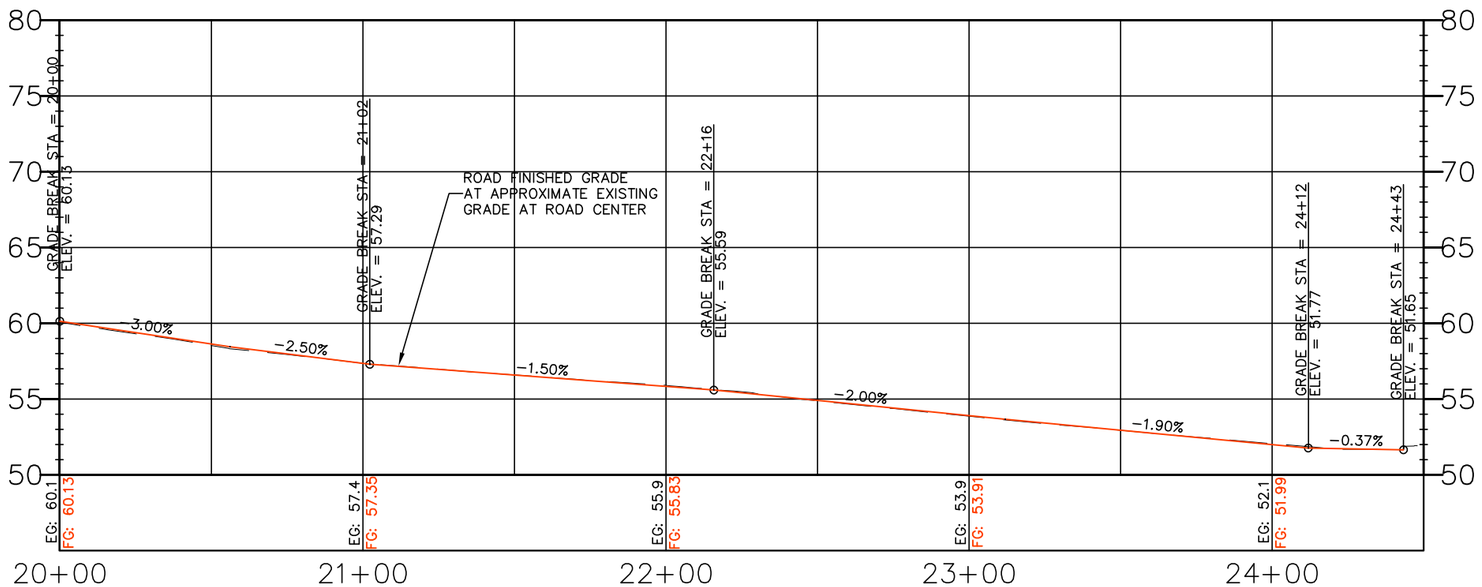
7 OF 8



A
C4.3

W. BUNNELL AVE. PLAN - STA 20+00 TO 24+50

GRAPHIC SCALE: 1"=25' (22X34), 1"=50' (11X17)



B
C4.3

W. BUNNELL AVE. PROFILE - STA 20+00 TO 24+50

HORIZ. SCALE: 1"=25' (22X34), 1"=50' (11X17); VERT. SCALE: 1"=5' (22X34), 1"=10' (11X17)

65% REVIEW

NO.	REVISION	DATE

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HOMER, ALASKA
PLAN AND PROFILE - BUNNELL AVENUE

PROJECT NO. 2022037
DRAWN BY: GTP
CHECKED BY: MJD
DATE: 02/08/2023
SCALES: NOTED
HORIZ. NOTED
VERT. NOTED
SHEET: C4.3
8 OF 8